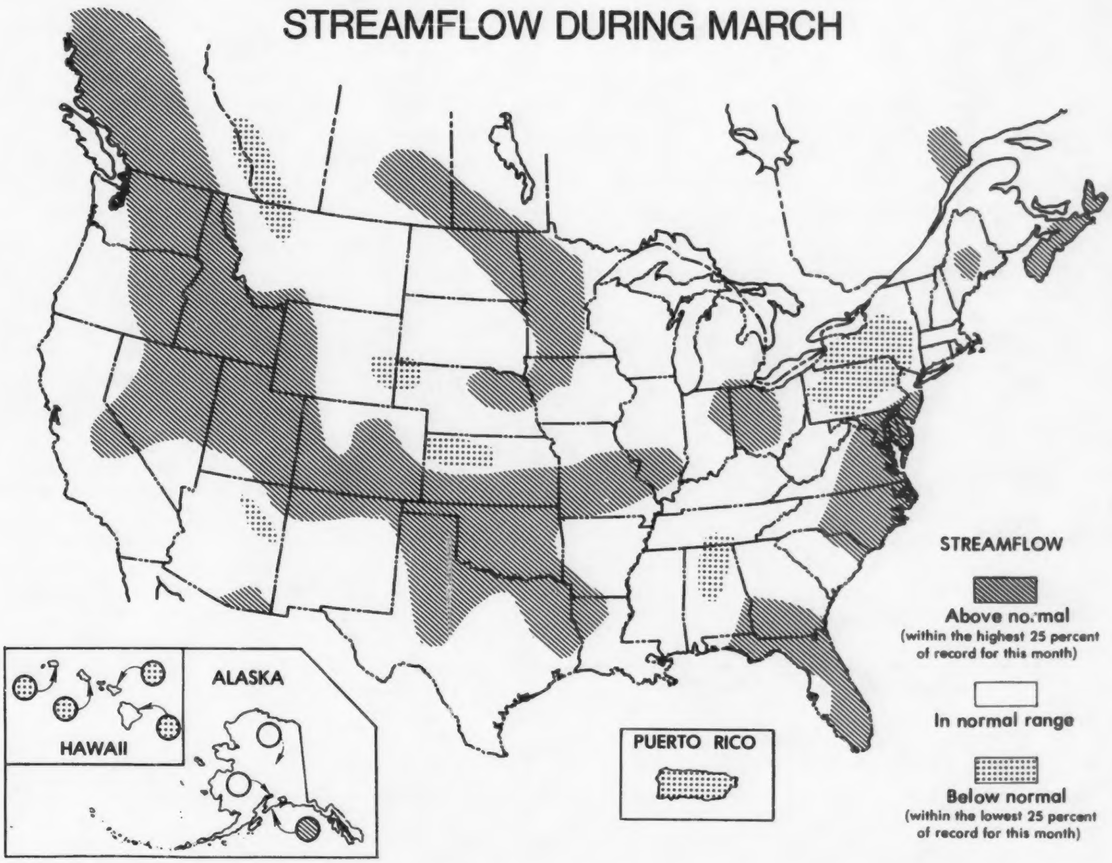
National Water Conditions

UNITED STATES
Department of the Interior
Geological Survey

CANADA
Department of the Environment
Water Resources Branch

MARCH 1984

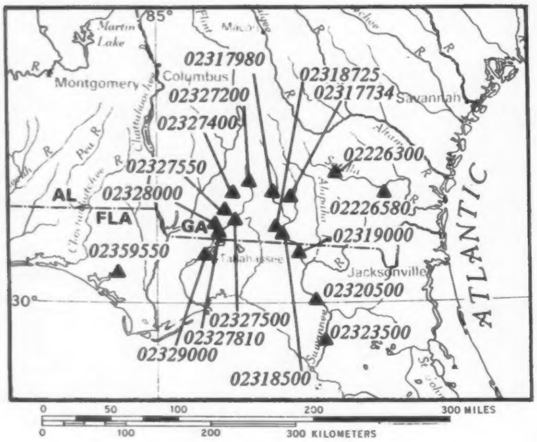


Streamflow was in the normal range or above that range in most of the United States and southern Canada during March. Monthly mean flows were highest of record for the month in parts of Georgia and Utah. Moderate to severe flooding occurred in parts of Florida, Georgia, Indiana, New Jersey, North Carolina, South Carolina, and Virginia. The elevation of Great Salt Lake in northern Utah rose to 4,207.35 feet above sea level at end of March 1984, the highest elevation in almost 100 years.

Below-normal flows persisted in parts of Alabama, Alberta, Hawaii, Kansas, Nebraska, and Puerto Rico, and were lowest of record for the month in parts of Kansas and Puerto Rico.

STREAMFLOW CONDITIONS DURING MARCH 1984

Moderate to severe flooding occurred in southern Georgia and parts of northern Florida, during the period March 6–13, 1984, caused by runoff from heavy rains of as much as 9 inches in a 24-hour period. Many of the flood flows at gaging stations were highest of record and had recurrence intervals that ranged up to 50 years. Gaging station locations are shown on the accompanying map, and preliminary data on flood stages, peak discharges, and recurrence intervals are given in the table on page 3. Runoff from storms on March 27–28 caused severe flooding in the Suwannee River basin in north Florida and southeast Georgia where most streams were still rising at month's end. The monthly mean flow of 7,520 cubic feet per second (cfs) and the daily mean flow of 13,800 cfs on the 13th at Alapaha River at Statenville, Georgia (drainage area, 1,400 square miles) were highest for March in 53 years of record. Flow at that site remained in the above-normal range for the 4th consecutive month.



Location of stream gaging stations in Georgia and Florida, described in table of peak stages and discharges on page 3.

Runoff from heavy rains associated with a severe band of destructive thunderstorms on March 28 caused moderate flooding on most streams in North and South Carolina and in southeast Virginia. On March 29, the highest tides in 22 years inundated many coastal communities in New Jersey. Atlantic City and other communities on barrier islands were isolated for periods by flooding of access roads. In Indiana, the combination of nearly saturated soils and rapid runoff from rains and melting snow caused most streams to quickly fill to bankfull stage by midmonth and flood stages, as designated by the National Weather Service, were exceeded on the Kankakee, White, and Wabash Rivers, causing extensive low-land flooding at month's end. Elsewhere in the Nation, minor flooding was reported in Idaho, Utah, and Nevada, and in parts of most States east of the Rocky Mountains as a result of runoff from rains and melting snow. As a result of these high flows, streamflow remained in the normal range or above that range in most of the United States and southern Canada during March.

In Utah, streamflow generally increased seasonally and remained in the above-normal range at all index stations. In the eastern part of the State, the monthly mean flow of 7,000 cfs at Colorado River near Cisco (drainage area, 24,100 square miles) was highest for March in 73 years of record and flow at that site remained in the above-normal range for the 11th consecutive month. In the northern part of the State, the level of Great Salt Lake continued to rise to an elevation of 4,207.35 feet above sea level at end of March, which was 0.65 foot higher than last month, 4.15 feet higher than a year ago, 16.0 feet higher than the alltime low of 4,191.35 feet reached just 21 years ago, and is presently at its highest elevation in almost 100 years.

Flows remained in the below-normal range in parts of Alabama, Nebraska, Kansas, Alberta, Hawaii, and Puerto Rico, and were lowest of record for the month in parts of Puerto Rico and Kansas. For example, the northern

(Continued on page 10.)

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FLOOD DATA FOR SELECTED SITES IN GEORGIA AND FLORIDA, MARCH 1984

WRD station number	Stream and place of determination	Drainage area (square miles)	Period of known floods	Maximum flood previously known			Maximum during present flood				
				Date	Stage (feet)	Discharge (cfs)	Date	Stage (feet)	Discharge		Recurrence interval (years)
									Cfs	Cfs per square mile	
	GEORGIA										
	SATILLA RIVER BASIN										
02226300	Satilla River near Pearson.	355	1862–	April 1948	20.60	19,500	Mar. 7	18.72	13,400	38	25
02226580	Big Creek near Hoboken.	60	1966–	April 4, 1973	11.44	2,210	7	12.96	3,220	54	25
	SUWANNEE RIVER BASIN										
02317734	New River near Nashville.	146	1970–	Feb. 24, 1979	11.77	4,350	7	12.55	6,550	45	50
02317980	Little River near Sparks.	555	1862–	April 2, 1948	14.70	a	7	14.21	17,400	31	30
02318500	Withlacoochee River near Quitman.	1,480	1862–	April 4, 1948	31.70	66,000	10	33.4	29,000	20	30
02318725	Okapilco Creek at Quitman.	278	1970–	April 26, 1973	14.10	6,200	8	16.16	12,000	43	50
	OCHLOCKONEE RIVER BASIN										
02327200	Ochlockonee River at Moultrie.	96	1862–	April 1948	15.50	11,000	7	10.14	4,000	42	25
02327400	Sallys Branch Tributary near Sale City.	3.70	1966–	June 25, 1972	5.92	800	6	6.64	1,200	324	50
02327500	Ochlockonee River near Thomasville.	550	1862–	April 2, 1948	29.10	66,000	8	22.80	24,000	44	35
02327550	Barnetts Creek near Meigs.	15	1948–	Dec. 4, 1964	7.38	3,620	6	7.59	3,980	265	30
02327810	Ochlockonee River near Cairo.	747	1948–	April 12, 1975	27.32	23,400	8	29.31	33,000	44	50
02328000	Tired Creek near Cairo.	60	1862–	April 1, 1948	16.30	28,100	6	12.82	12,000	200	50
	FLORIDA										
	SUWANNEE RIVER BASIN										
02319000	Withlacoochee River near Pinetta.	2,120	1931–	April 5, 1948	38.64	79,400	Mar. 12	35.85	38,200	18	25
02320500	Suwannee River at Branford.	7,880	1931–	April 11, 1948	34.07	83,900	21	27.05	36,800	4.7	10
02323500	Suwannee River near Wilcox.	9,640	1931, 1941–	April 14, 1948	22.32	84,700	23–24	14.80	37,700	3.9	12
	OCHLOCKONEE RIVER BASIN										
02329000	Ochlockonee River near Havana.	1,140	1926–	April 4, 1948	35.08	55,900	9	32.29	28,400	25	30
	ST. ANDREW BAY, INFLOW AND COASTAL AREA										
02359550	Bear Creek near Youngstown.	67.2	1962–	July 31, 1975	16.29	7,220	7	16.5	5,640	84	37

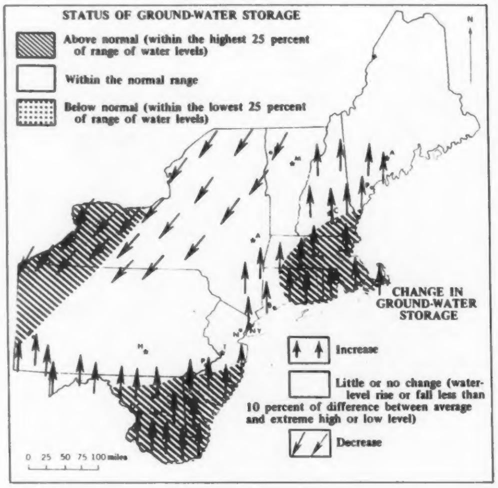
[a]Discharge not determined.

GROUND-WATER CONDITIONS DURING MARCH 1984

Ground-water levels continued to rise in eastern and southern parts of the Northeast Region, especially along the coast from southern Maine to southern Maryland. (See map.) Levels declined in much of upstate New York. Levels remained near or above average in most of the Northeast. Levels in a few key observation wells in Massachusetts were near or at record-high levels for end of March during the past 30 to 40 years.

In the southeastern States, ground-water levels rose seasonally in Kentucky, Virginia, North Carolina, Arkansas, and Alabama. Trends were mixed in other southeastern States. Water levels were above average in Kentucky, Virginia, and North Carolina, and below average in Arkansas. Levels were both above and below average in West Virginia and Louisiana, and generally average in Florida. New high water levels for March were reached in key wells in Kentucky and North Carolina. A new low level for March was recorded in Louisiana.

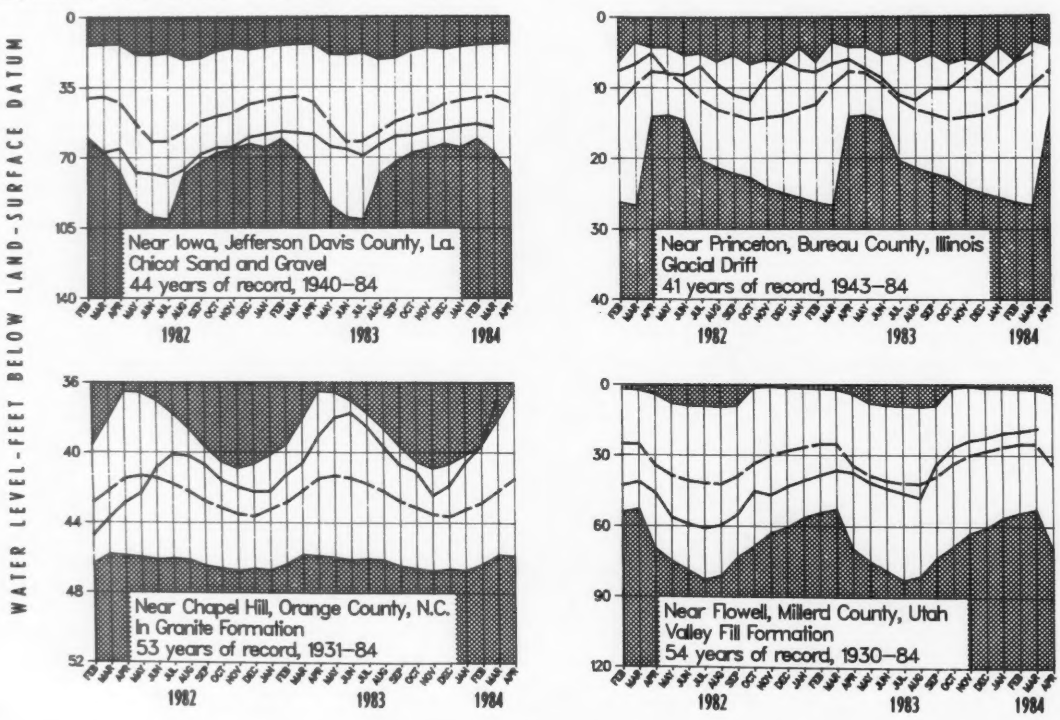
In the central and Western Great Lakes States, ground-water levels rose in Minnesota, Michigan, Indiana, and Ohio, but declined in Iowa. Water levels were above average in Ohio and generally above average in Michigan



Map shows ground-water storage near end of March and change in ground-water storage from end of February to end of March.

MONTHEND GROUND-WATER LEVELS IN KEY WELLS

Unshaded area indicates range between highest and lowest record for the month. Dashed line indicates average of monthly levels in previous years. Heavy line indicates level for current period.



WATER LEVELS IN KEY OBSERVATION WELLS IN SOME REPRESENTATIVE AQUIFERS IN THE CONTERMINOUS UNITED STATES—MARCH 1984

Aquifer and location	Current water level in feet below land-surface datum	Departure from average in feet	Net change in water level in feet since: Last month	Last year	Year records began	Remarks
Glacial drift at Hanska, south-central Minnesota	-6.20	+0.97	+5.11	-3.35	1943	
Glacial drift at Roscommon in north-central part of Lower Peninsula, Michigan	-3.98	+0.57	+0.22	+0.42	1935	
Glacial drift at Marion, Iowa	-3.35	+0.71	-1.54	-0.76	1941	
Glacial drift at Princeton in northwestern Illinois	-6.14	+3.50	+0.26	+0.49	1943	
Petersburg Granite, southeastern Piedmont near Fall Zone, Colonial Heights, Virginia	-11.55	+2.78	+1.46	+0.56	1939	
Glacial outwash sand and gravel, Louisville, Kentucky (U.S. well no. 2)	-17.89	+7.89	+0.30	+1.14	1946	
500-foot sand aquifer near Memphis, Tennessee (U.S. well no. 2)	-102.81	-14.79	+0.69	-0.91	1941	
Granite in eastern Piedmont Province, Chapel Hill, North Carolina	-36.80	+5.39	+2.78	+3.80	1931	March high.
Sparta Sand in Pine Bluff industrial area, Arkansas	-227.25	-22.48	+0.85	+3.45	1958	
Eutaw Formation in the City of Montgomery, Alabama (U.S. well no. 4)	-14.8	+3.5	+0.4	+0.9	1952	
Limestone aquifer on Cockspur Island, Savannah area, Georgia (U.S. well no. 6)	-30.81	-5.92	+0.25	-2.06	1956	
Sand and gravel in Puget Trough, Tacoma, Washington	-99.48	+8.42	+0.35	+1.64	1952	
Pleistocene glacial outwash gravel, North Pole, northern Idaho (U.S. well no. 3)	-456.8	+4.9	+0.1	+1.4	1929	
Snake River Group: southwestern Snake River Plain aquifer, at Eden, Idaho	-126.5	-5.6	-0.5	+1.9	1957	
Alluvial valley fill in Flowell area, Millard County, Utah (U.S. well no. 9)	-18.18	+7.04	+1.66	+18.12	1929	
Alluvial sand and gravel, Platte River Valley, Nebraska (U.S. well no. 6)	-2.18	+2.47	+0.84	+0.21	1935	
Alluvial valley fill in Steptoe Valley, Nevada	-9.08	+3.74	+0.29	+0.39	1950	March high.
Pieistocene terrace deposits in Kansas River valley, at Lawrence, northeastern Kansas	-21.26	-0.04	+0.29	-0.52	1953	
Alluvium and Paso Robles clay, sand, and gravel, Santa Maria Valley, California (U.S. well no. 11.)	-99.00	+43.48	+1.58	+37.45	1957	Alltime high.
Valley fill, Elfrida area, Douglas, Arizona (U.S. well no. 15)	-107.9	-30.62	-0.1	+2.4	1951	
Hueco bolson, El Paso area, Texas	-261.79	-17.36	-2.17	-2.45	1965	March low.
Evangeline aquifer, Houston area, Texas	-307.19	-13.12	+2.23	+9.24	1965	

and Iowa; levels were mixed with respect to average in Minnesota.

In the western States, ground-water levels rose seasonally in Washington, North Dakota, Nebraska, and Nevada. Levels declined in New Mexico and in most observation wells in Arizona and Texas. Trends were mixed in other States. Water levels were above average in Washington, Nebraska, and Nevada, and below average in Kansas and Arizona. Levels were above and below average in other States. New high ground-water levels for March were noted in Idaho, Nevada, and Utah, and new alltime high levels were reached in southern California and Nevada, in 27 and 38 years of record, respectively. New low levels for March occurred in Nevada, New Mexico, and Texas, and a new alltime low level in 21 years of record was reached in Arizona.

USABLE CONTENTS OF SELECTED RESERVOIRS NEAR END OF MARCH 1984

[Contents are expressed in percent of reservoir capacity. The usable storage capacity of each reservoir is shown in the column headed "Normal maximum."]

Reservoir Principal uses: F–Flood control I–Irrigation M–Municipal P–Power R–Recreation W–Industrial	Percent of normal maximum				Normal maximum (acre-feet)[a]
	End of Mar. 1984	End of Mar. 1983	Average for end of Mar.	End of Feb. 1984	
NOVA SCOTIA					
Rossignol, Mulgrave, Falls Lake, St. Margaret's Bay, Black, and Ponhook Reservoirs (P)	72	53	64	54	[b]226,300
QUEBEC					
Allard (P)	29	57	32	35	280,600
Gouin (P)	58	59	47	59	6,954,000
MAINE					
Seven reservoir systems (MP)	44	58	35	54	4,098,000
NEW HAMPSHIRE					
First Connecticut Lake (P)	30	46	16	47	76,450
Lake Francis (FPR)	26	46	22	48	99,310
Lake Winnipesaukee (PR)	88	101	65	86	165,700
VERMONT					
Harriman (P)	46	55	34	69	116,200
Somerset (P)	36	63	52	49	57,390
MASSACHUSETTS					
Cobble Mountain and Borden Brook (MP)	82	89	78	82	77,920
NEW YORK					
Great Sacandaga Lake (FPR)	43	71	48	49	786,700
Indian Lake (FMP)	51	56	48	64	103,300
New York City reservoir system (MW)	89	87	...	86	1,680,000
NEW JERSEY					
Wanaque (M)	101	102	89	101	85,100
PENNSYLVANIA					
Allegheny (FPR)	30	35	35	40	1,180,000
Pymatuning (FMR)	94	94	94	91	188,000
Raystown Lake (FR)	68	57	55	68	761,900
Lake Wallenpaupack (PR)	61	66	65	70	157,800
MARYLAND					
Baltimore municipal system (M)	102	77	92	101	261,900
NORTH CAROLINA					
Bridgewater (Lake James) (P)	89	100	90	94	288,800
Narrows (Badin Lake) (P)	100	100	100	100	128,900
High Rock Lake (P)	73	100	83	100	234,800
SOUTH CAROLINA					
Lake Murray (P)	90	91	79	91	1,614,000
Lakes Marion and Moultrie (P)	93	93	81	90	1,862,000
SOUTH CAROLINA--GEORGIA					
Clark Hill (FP)	81	84	74	90	1,730,000
GEORGIA					
Burton (PR)	88	82	84	83	104,000
Sinclair (MPR)	98	95	89	99	214,000
Lake Sidney Lanier (FMPR)	65	67	60	65	1,686,000
ALABAMA					
Lake Martin (P)	87	95	89	81	1,375,000
TENNESSEE VALLEY					
Clinch Projects: Norris and Melton Hill Lakes (FPR)	58	44	52	48	2,229,300
Douglas Lake (FPR)	38	51	43	22	1,394,000
Hiwassee Projects: Chatuge, Nottely, Hiwassee, Apalachia, Blue Ridge, Ocoee 3, and Parksville Lakes (FPR)	66	63	64	54	1,012,000
Holston Projects: South Holston, Watauga, Boone, Fort Patrick Henry, and Cherokee Lakes (FPR)	55	56	56	47	2,880,000
Little Tennessee Projects: Nantahala, Thorpe, Fontana, and Chilhowee Lakes (FPR)	64	61	63	53	1,478,000
WISCONSIN					
Chippewa and Flambeau (PR)	50	67	26	46	365,000
Wisconsin River (21 reservoirs) (PR)	40	66	25	53	399,000
MINNESOTA					
Mississippi River headwater system (FMR)	18	21	19	20	1,640,000
NORTH DAKOTA					
Lake Sakakawea (Garrison) (FIPR)	84	85	82	83	22,700,000
SOUTH DAKOTA					
Angostura (I)	95	95	82	83	127,600
Belle Fourche (I)	74	96	63	65	185,200
Lake Francis Case (FIP)	73	77	81	73	4,834,000
Lake Oahe (FIP)	90	90	...	89	22,530,000
Lake Sharpe (FIP)	100	100	100	100	1,725,000
Lewis and Clarke Lake (FIP)	77	84	84	75	477,000

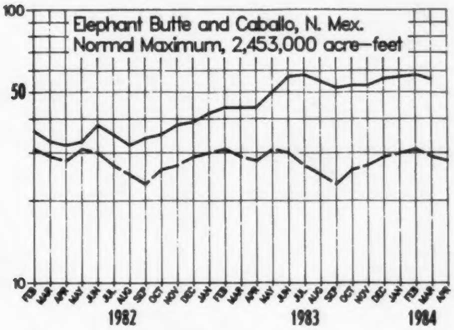
Reservoir Principal uses: F–Flood control I–Irrigation M–Municipal P–Power R–Recreation W–Industrial	Percent of normal maximum				Normal maximum (acre-feet)[a]
	End of Mar. 1984	End of Mar. 1983	Average for end of Mar.	End of Feb. 1984	
NEBRASKA					
Lake McConaughy (IP)	81	84	77	82	1,948,000
OKLAHOMA					
Eufaula (FPR)	106	95	86	84	2,378,000
Keystone (FPR)	81	84	101	81	661,000
Tenkiller Ferry (FPR)	112	101	93	93	628,200
Lake Altus (FIMR)	46	65	54	45	133,000
Lake O'The Cherokees (FPR)	111	88	87	92	1,492,000
OKLAHOMA--TEXAS					
Lake Texoma (FMPRW)	94	94	88	96	2,722,000
TEXAS					
Bridgeport (IMW)	72	88	46	73	386,400
Canyon (FMR)	88	94	78	89	385,600
International Amistad (FIMPW)	76	86	84	78	3,497,000
International Falcon (FIMPW)	47	74	75	46	2,668,000
Livingston (IMW)	102	103	87	100	1,788,000
Possum Kingdom (IMPRW)	82	87	95	81	570,200
Red Bluff (PI)	14	18	30	14	307,000
Toledo Bend (P)	93	96	87	96	4,472,000
Twin Buttes (FIM)	22	37	33	22	177,800
Lake Kemp (IMW)	103	87	85	105	268,000
Lake Meredith (FWM)	40	53	37	41	796,900
Lake Travis (FIMPRW)	79	87	82	80	1,144,000
MONTANA					
Canyon Ferry (FIMPR)	77	80	75	81	2,043,000
Fort Peck (FPR)	85	83	82	84	18,910,000
Hungry Horse (FIPR)	60	78	59	73	3,451,000
WASHINGTON					
Ross (PR)	50	34	29	66	1,052,000
Franklin D. Roosevelt Lake (IP)	89	38	49	92	5,022,000
Lake Chelan (PR)	42	40	31	54	676,100
Lake Cushman (PR)	78	86	84	63	359,500
Lake Merwin (P)	92	99	98	101	245,600
IDAHO					
Boise River (4 reservoirs) (FIP)	62	66	66	53	1,235,000
Coeur d'Alene Lake (P)	93	72	71	50	238,500
Pend Oreille Lake (FP)	61	60	51	58	1,561,000
IDAHO--WYOMING					
Upper Snake River (8 reservoirs) (MP)	79	73	74	73	4,401,000
WYOMING					
Boysen (FIP)	73	64	63	74	802,000
Buffalo Bill (IP)	71	72	60	74	421,300
Keyhole (F)	34	35	47	28	193,800
Pathfinder, Seminoe, Alcova, Kortes, Glendo, and Guernsey Reservoirs (I)	71	62	50	75	3,056,000
COLORADO					
John Martin (FIR)	38	22	18	34	364,400
Taylor Park (IR)	46	52	55	56	106,200
Colorado–Big Thompson project (I)	84	57	55	83	722,600
COLORADO RIVER STORAGE PROJECT					
Lake Powell; Flaming Gorge, Fontenelle, Navajo, and Blue Mesa Reservoirs (IFPR)	82	88	...	84	31,620,000
UTAH--IDAHO					
Bear Lake (IPR)	74	78	60	76	1,421,000
CALIFORNIA					
Folsom (FIP)	77	64	62	69	1,000,000
Hetch Hetchy (MP)	73	68	28	76	360,400
Isabella (FIR)	48	82	29	47	568,100
Pine Flat (FI)	74	76	57	73	1,001,000
Clair Engle Lake (Lewiston) (P)	84	91	83	79	2,438,000
Lake Almanor (P)	96	93	54	88	1,036,000
Lake Berryessa (FIMW)	100	104	89	100	1,600,000
Millerton Lake (FI)	81	82	66	77	503,200
Shasta Lake (FIPR)	94	85	84	86	4,377,000
CALIFORNIA--NEVADA					
Lake Tahoe (IPR)	68	76	55	69	744,600
NEVADA					
Rye Patch (I)	36	86	69	57	194,300
ARIZONA--NEVADA					
Lake Mead and Lake Mohave (FIMP)	91	94	67	92	27,970,000
ARIZONA					
San Carlos (IP)	82	54	23	85	1,073,000
Salt and Verde River system (IMPR)	84	94	52	85	2,019,100
NEW MEXICO					
Conchas (FIR)	67	76	80	68	330,100
Elephant Butte and Caballo (FIPR)	56	44	30	58	2,453,000

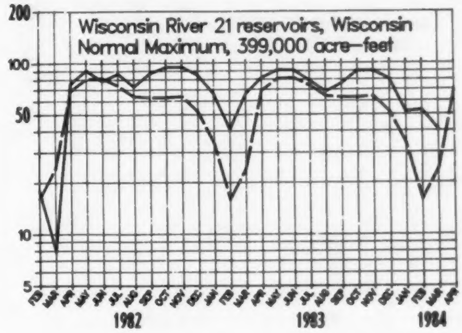
[a]1 acre-foot = 0.0436 million cubic feet = 0.326 million gallons = 0.504 cubic feet per second day.
[b]Thousands of kilowatt-hours (the potential electric power that could be generated by the volume of water in storage).

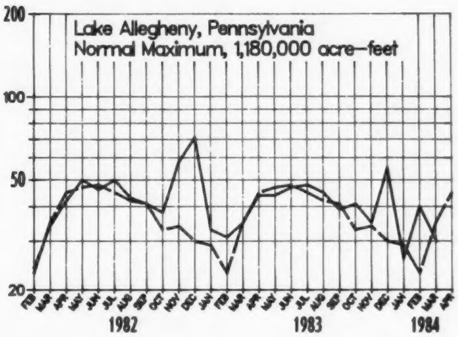
USABLE CONTENTS OF SELECTED RESERVOIRS AND RESERVOIR SYSTEMS, FEBRUARY 1982 TO MARCH 1984

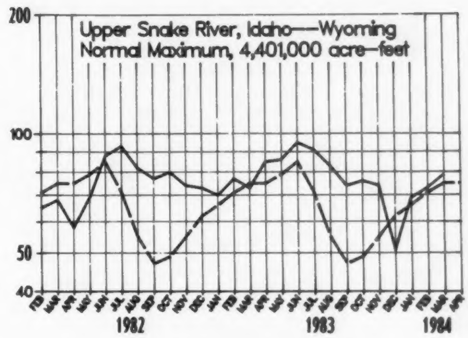
Dashed line indicates average of month-end contents. Solid line indicates current period.

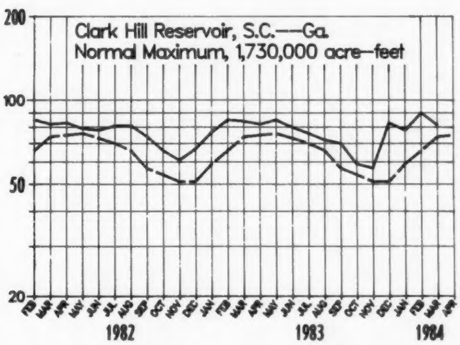
PERCENT OF NORMAL MAXIMUM

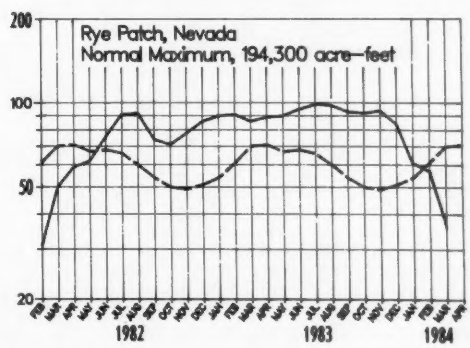


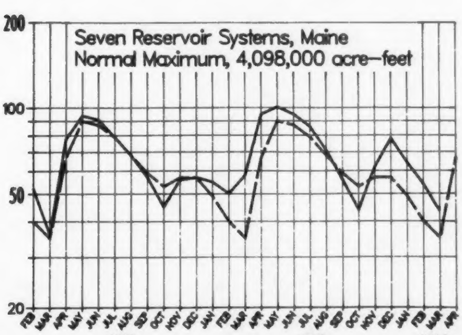


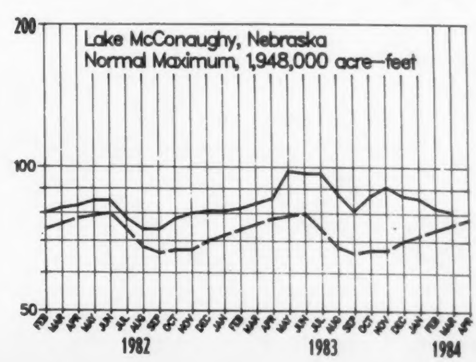












FLOW OF LARGE RIVERS DURING MARCH 1984

Station number	Stream and place of determination	Drainage area (square miles)	Mean annual discharge through September 1980 (cubic feet per second)	March 1984					
				Monthly mean discharge (cubic feet per second)	Percent of median monthly discharge, 1951–80	Change in discharge from previous month (percent)	Discharge near end of month		
							Cubic feet per second	Million gallons per day	Date
01014000	St. John River below Fish River at Fort Kent, Maine	5,690	9,647	3,973	164	0	4,200	2,710	31
01318500	Hudson River at Hadley, N.Y	1,664	2,909	3,290	110	-30	3,500	2,260	31
01357500	Mohawk River at Cohoes, N.Y	3,456	5,734	6,450	61	-37	6,500	4,200	31
01463500	Delaware River at Trenton, N.J	6,780	11,750	14,760	74	-31	19,300	12,470	31
01570500	Susquehanna River at Harrisburg, Pa	24,100	34,530	44,100	61	-56	67,000	43,300	31
01646500	Potomac River near Washington, D.C.	11,560	[1] 11,490	36,700	151	-9	128,000	82,700	31
02105500	Cape Fear River at William O. Huske Lock near Tarheel, N.C.	4,810	5,005	16,000	159	+23	29,000	18,700	31
02131000	Pee Dee River at Peedee, S.C	8,830	9,851	27,500	153	+43	21,600	13,960	29
02226000	Altamaha River at Doctortown, Ga	13,600	13,880	37,800	120	+26	26,000	16,800	29
02320500	Suwannee River at Branford, Fla	7,880	6,987	26,500	236	+50	32,000	20,700	31
02358000	Apalachicola River at Chattahoochee, Fla	17,200	22,570	53,300	129	+35	58,900	38,070	31
02467000	Tombigbee River at Demopolis lock and dam near Coatopa, Ala	15,400	23,300	39,370	83	+23	60,400	39,040	31
02489500	Pearl River near Bogalusa, La	6,630	9,768	23,635	135	+19	12,200	7,890	31
03049500	Allegheny River at Natrona, Pa	11,410	[1] 19,480	31,840	78	-26	40,200	25,980	26
03085000	Monongahela River at Braddock, Pa.	7,337	[1] 12,510	22,660	107	+8	30,400	19,650	26
03193000	Kanawha River at Kanawha Falls, W. Va	8,367	12,590	26,519	111	-7	35,300	22,810	27
03234500	Scioto River at Higby, Ohio	5,131	4,547	14,890	154	+90	25,500	16,480	30
03294500	Ohio River at Louisville, Ky[2]	91,170	116,000	222,000	90	+27	346,700	224,080	25
03377500	Wabash River at Mount Carmel, Ill	28,635	27,220	59,920	104	+36	124,000	80,100	30
03469000	French Broad River below Douglas Dam, Tenn	4,543	6,798	11,100	94	-9	......	......	...
04084500	Fox River at Rapide Croche Dam, near Wrightstown, Wis[2]	6,150	4,163	3,503	83	-15	......	......	...
04264331	St. Lawrence River at Cornwall, Ontario–near Massena, N.Y[3]	299,000	242,700	279,800	112	+6	286,000	184,800	31
05011500	St. Maurice River at Grand Mere, Quebec	16,300	25,150	11,900	143	+4	17,800	11,500	29
05082500	Red River of the North at Grand Forks, N. Dak	30,100	2,551	4,138	222	+141	12,000	7,800	31
05133500	Rainy River at Manitou Rapids, Minn.	19,400	12,830	10,200	106	-4	10,300	6,660	25
05330000	Minnesota River near Jordan, Minn.	16,200	3,402	9,359	295	+149	21,500	13,900	31
05331000	Mississippi River at St. Paul, Minn	36,800	[1] 10,610	22,626	293	+76	42,000	27,100	31
05365500	Chippewa River at Chippewa Falls, Wis	5,600	5,100	4,734	101	-33	8,620	5,571	30
05407000	Wisconsin River at Muscoda, Wis	10,300	8,617	9,489	99	-10	7,672	4,958	31
05446500	Rock River near Joslin, Ill	9,551	5,873	9,300	100	-9	10,000	6,000	31
05474500	Mississippi River at Keokuk, Iowa	119,000	62,620	111,940	133	+17	111,500	72,060	31
06214500	Yellowstone River at Billings, Mont	11,796	7,038	3,324	107	-8	3,430	2,216	29
06934500	Missouri River at Hermann, Mo	524,200	79,490	170,300	230	+84	231,300	149,490	27
07289000	Mississippi River at Vicksburg, Miss[4]	1,140,500	576,600	1,005,000	123	+52	985,000	636,600	26
07331000	Washita River near Dickson, Okla.	7,202	1,368	1,690	285	+161	3,050	1,971	26
08276500	Rio Grande below Taos Junction Bridge, near Taos, N. Mex	9,730	725	843	148	+72	1,300	840	30
09315000	Green River at Green River, Utah	40,600	6,298	7,559	187	+21	9,700	6,270	31
11425500	Sacramento River at Verona, Calif	21,257	18,820	26,232	84	-3	34,000	22,000	19
13269000	Snake River at Weiser, Idaho	69,200	18,050	35,100	177	+34	39,700	25,660	28
13317000	Salmon River at White Bird, Idaho	13,550	11,250	7,400	146	+28	8,400	5,430	28
13342500	Clearwater River at Spalding, Idaho	9,570	15,480	18,000	141	+77	24,400	15,770	28
14105700	Columbia River at The Dalles, Oreg[5]	237,000	193,100	186,200	152	+48	248,900	160,870	27
14191000	Willamette River at Salem, Oreg.	7,280	23,510	40,900	127	-20	52,900	34,190	27
15515500	Tanana River at Nenana, Alaska.	25,600	23,460	7,010	114	+19	6,400	4,140	31
8MF005	Fraser River at Hope, British Columbia	83,800	96,290	40,607	126	+14	60,027	38,796	30

[1] Adjusted.
[2] Records furnished by Corps of Engineers.
[3] Records furnished by Buffalo District, Corps of Engineers, through International St. Lawrence River Board of Control. Discharges shown are considered to be the same as discharge at Ogdensburg, N.Y. when adjusted for storage in Lake St. Lawrence.
[4] Records of daily discharge computed jointly by Corps of Engineers and Geological Survey.
[5] Discharge determined from information furnished by Bureau of Reclamation, Corps of Engineers, and Geological Survey.

DISSOLVED SOLIDS AND WATER TEMPERATURES FOR MARCH

Station number	Station name	March data of following calendar years	Stream discharge during month	Dissolved-solids co during mon	
			Mean (cfs)	Minimum (mg/L)	M
	NORTHEAST				
01463500	Delaware River at	1984	14,760	86	
	Trenton, N.J.	1945–83	20,540	44	
	(Morrisville, Pa.)	(Extreme yr)		(1945)	
			[c]20,040		
04264331	St. Lawrence River at	1984	280,000	165	
	Cornwall, Ontario, near	1976–83	268,200	164	
	Massena, N.Y.	(Extreme yr)		(1977)	
	median streamflow at		[c]250,000		
	Ogdensburg, N.Y.				
	SOUTHEAST				
0728900	Mississippi River at	1984	1,005,000	216	
	Vicksburg, Miss.	1976–83	851,700	166	
		(Extreme yr)		(1979)	
			[c]814,500		
	WESTERN GREAT LAKES REGION				
03612500	Ohio River at lock and dam	1984	475,000	157	
	53, near Grand Chain, Ill.	1955–83	547,900	128	
	(25 miles west of Paducah,	(Extreme yr)		(1955,1964)	
	Ky.; streamflow station		[c]578,300		
	at Metropolis, Ill.)				
	MIDCONTINENT				
06934500	Missouri River at Hermann,	1984	170,000	263	
	Mo. (60 miles west of St.	1976–83	102,400	186	
	Louis, Mo.)	(Extreme yr)		(1978)	
			[c]74,200		
	WEST				
14128910	Columbia River at	1984	220,000	105	
	Warrendale, Oreg.	1976–83	204,000	87	
	(streamflow station	(Extreme yr)		(1980)	
	at The Dalles, Oreg.)		[c]122,950		

[a]Dissolved-solids concentrations, when not analyzed directly, are calculated on basis of measure

[b]To convert °C to °F: $[(1.8 \times °C) + 32] = °F$.

[c]Median of monthly values for 30-year reference period, water years 1951–80, for comparison

CH 1984 AT DOWNSTREAM SITES ON SIX LARGE RIVERS

ls concentration month[a]	Dissolved-solids discharge during month[a]			Water temperature during month[b]		
Maximum (mg/L)	Mean (tons per day)	Minimum (tons per day)	Maximum (tons per day)	Mean, in°C	Mini-mum, in°C	Maxi-mum, in°C
107	3,720	2,630	5,180	4.5	2.0	7.5
136	.....	1,100	98,100	....	0	15.0
(1980)		(1980)	(1978)			
166	125,000	120,000	128,000	1.0	1.0	1.0
170	120,000	94,000	145,000	1.0	0	3.0
(1979)		(1977)	(1978)			
238	612,000	542,000	680,000	8.0	6.5	9.0
254	457,000	180,000	803,000	9.5	5.0	14.5
(1980)		(1981)	(1979)			
236	.....	163,000	326,000	....	7.0	8.5
312	.....	54,000	776,000	....	0.5	14.5
(1968)		(1968)	(1979)			
406	145,000	94,500	199,000	5.5	3.0	9.0
530	82,300	29,300	199,000	7.5	0	13.0
(1981)		(1977)	(1979)			
114	65,400	52,900	80,900	6.0	4.0	8.0
126	58,100	25,600	114,300	6.5	3.0	8.0
(1979)		(1980)	(1983)			

surements of specific conductance.

son with data for current month.

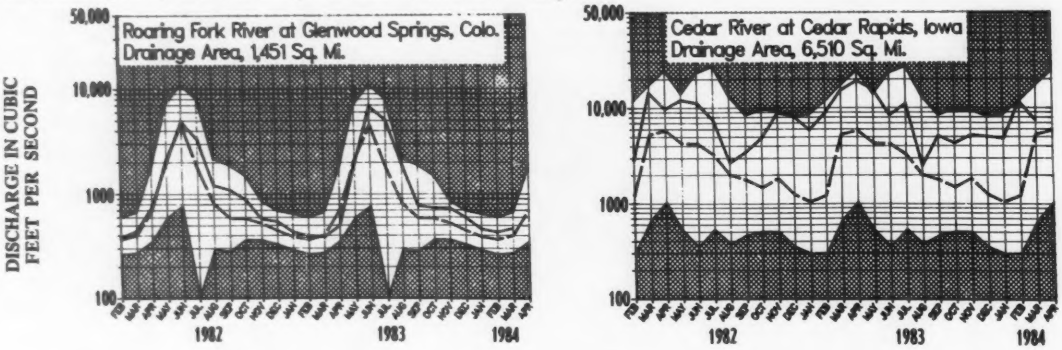
(Continued from page 2.)
part of Puerto Rico experienced extremely dry conditions as evidenced by the index station, Rio Grande de Manati at Highway 2, where monthly mean flow was lowest since records began in 1971.

The Nation's above-normal trend in streamflow was again reflected in the combined flow of its three largest rivers—Mississippi, St. Lawrence, and Columbia—which averaged 1,471,000 cfs during March, up 40 percent from last month and 24 percent above average for March. These three river systems drain more than half of the conterminous United States and provide a quick useful check on the status of the Nation's surface water resources.

For the 6-month period ending March 31, 1984, streamflow was also in the normal range or above that range in most of the United States and southern Canada. (See map below.) Near- or above-average contents characterized most reservoirs in the Nation at the end of March 1984.

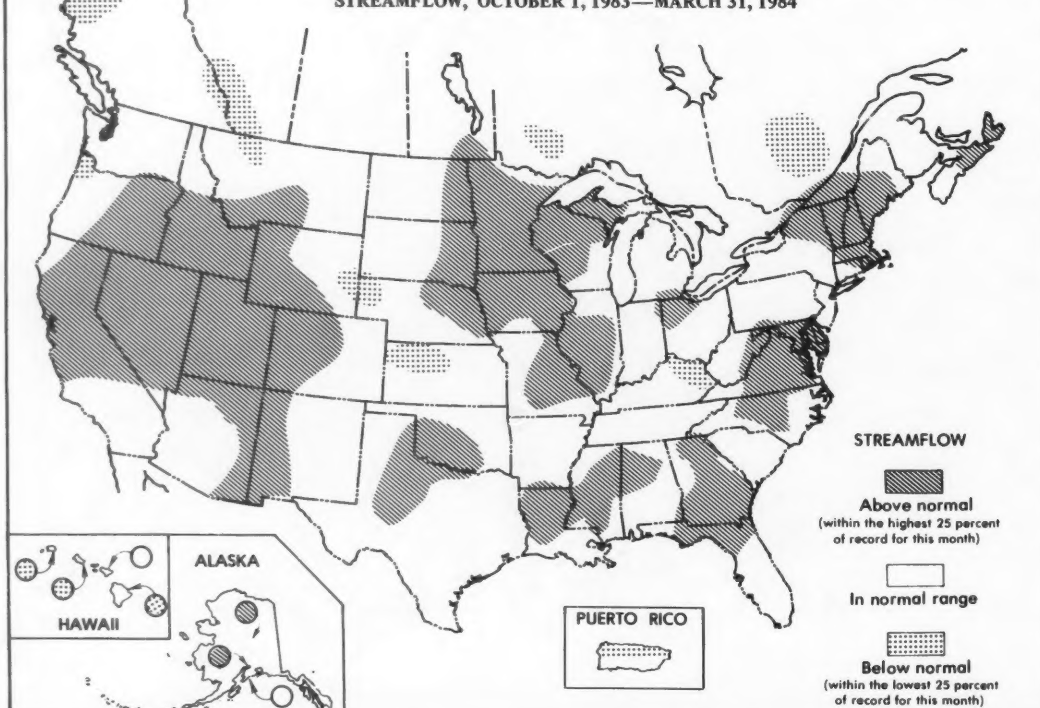
SURFACE WATER – MONTHLY MEAN DISCHARGE IN KEY STREAMS

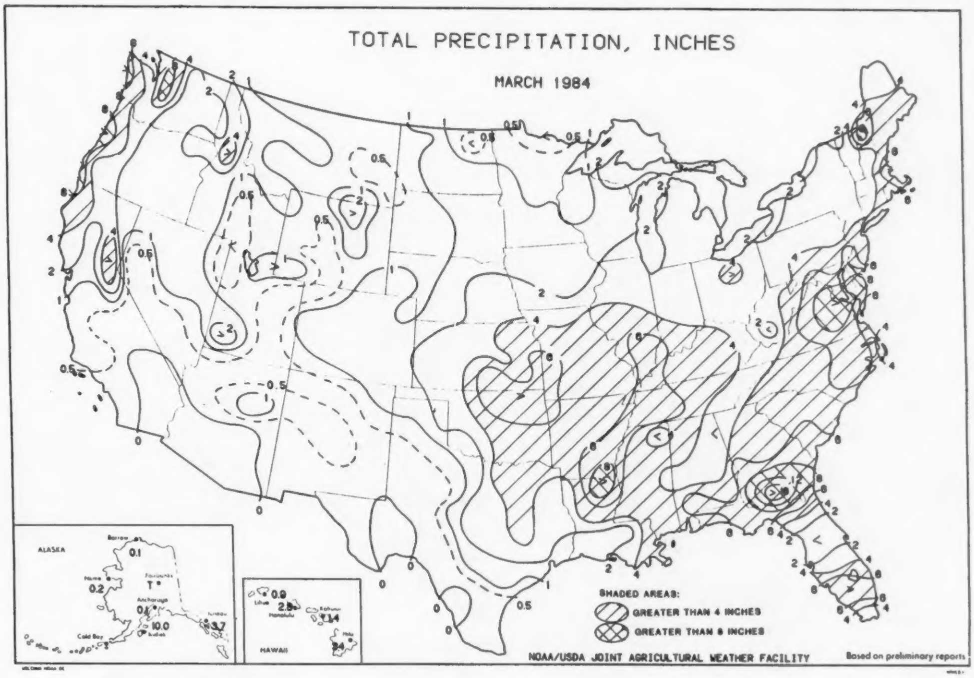
Unshaded area indicates range between highest and lowest record for the month. Dashed line indicates median for monthly values for reference period, 1951–80. Heavy line indicates mean for current period.



SUPPLEMENTAL DATA FOR SIX-MONTH PERIOD ENDING MARCH 31, 1984

STREAMFLOW, OCTOBER 1, 1983—MARCH 31, 1984





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NATIONAL WATER CONDITIONS

March 1984

Based on reports from the Canadian and U.S. Field offices; completed April 11, 1984

TECHNICAL STAFF	Carroll W. Saboe, Editor Hai C. Tang, Associate Editor Krishnaveni V. Sarma Sandra L. Holmes John C. Kammerer Allen Sinnott
COPY PREPARATION	Lois C. Fleshmon Sharon L. Peterson Daphne L. Chinn
GRAPHICS	Frances B. Davison Carolyn L. Moss Leslie J. Robinson Joan M. Rubin

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EXPLANATION OF DATA

Cover map shows generalized pattern of streamflow for the month based on 18 index stream-gaging stations in Canada and 164 index stations in the United States. Alaska and Hawaii inset maps show streamflow only at the index gaging stations that are located near the points shown by the arrows.

Streamflow for the current month is compared with flow for the same month in the 30-year reference period, 1951–80. Streamflow is considered to be *below the normal range* if it is within the range of the low flows that have occurred 25 percent of the time (below the lower quartile) during the reference period. Flow is considered to be *above the normal range* if it is within the range of the high flows that have occurred 25 percent of the time (above the upper quartile). Shorter reference periods are used for the Puerto Rico index stations because of the limited records available.

Flow higher than the lower quartile but lower than the upper quartile is described as being *within the normal range*. In the National Water Conditions, the median is obtained by ranking the 30 flows for each month of the reference period in their order of magnitude; the highest flow is number 1, the lowest flow is number 30, and the average of the 15th and 16th highest flows is the median. One-half of the time you would expect the flows for the month to be below the median and one-half of the time to be above the median.

Statements about *ground-water levels* refer to conditions near the end of the month. The water level in each key observation well is compared with average level for the end of the month determined from the entire past record for that well or from a 30-year reference period, 1951–80. *Changes in ground-water levels*, unless described otherwise, are from the end of the previous month to the end of the current month.

Dissolved solids and temperature data for March are given for six stream-sampling sites that are part of the National Stream Quality Accounting Network (NASQAN). Dissolved solids are minerals dissolved in water and usually consist predominantly of silica and ions of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, sulfate, chloride, and nitrate. Dissolved-solids discharge represents the total daily amount of dissolved minerals carried by the stream. Dissolved-solids *concentrations* are generally higher during periods of low streamflow, but the highest dissolved-solids *discharges* occur during periods of high streamflow because the total quantities of water, and therefore total load of dissolved minerals, are so much greater than at time of low flow.

UNITED STATES
DEPARTMENT OF THE INTERIOR
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